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Robert C Kowert  
Conley Rose & Tayon P C  
P O Box 398  
Austin, TX 78767

EXAMINER

CHAVIS, JOHN Q

ART UNIT PAPER NUMBER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/553,970  
Filing Date: April 21, 2000  
Appellant(s): ALLAVARPU ET AL.

**MAILED**  
JUN 16 2004  
Technology Center 2100

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Robert C. Kowert  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed March 29, 2004.

**(1) Real Party in Interest**

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

Appellant's brief includes a statement that claims 1-15, 17-37, 39-58 and 60-64 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

|           |                |         |
|-----------|----------------|---------|
| 6,282,701 | Wygodny et al. | 8-2001  |
| 6,467,052 | Kaler et al.   | 10-2002 |

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

10-1. Claims 1-7, 9-17, 20 and 21; 22-28, 30-39, 42 and 43; and 44-50, 52-60, 63 and 64 are rejected under 35 U.S.C. 102 (e) as being anticipated by Wygodny (U.S. Pat. No. 6,282,701).

Claim 1 (which is representative of the applicant's group A)

Wygodny teaches a system for thread-safe debugging substantially as claimed ("BugTrapper")

comprising:

A thread-safe debug service executable on a client system to provide debug services to debug a multi-threaded application(col.3, li.20-23, 27-30); and

A thread-safe remote control service ("agent") executable on the client system to receive control requests from an external source to initiate and manage the debug services on the client system after the initiation of the multi-threaded application (col.3, li.30-38).

The applicant indicates that Bugtrapper is not a remote control service and is run entirely on a remote computer by a remote customer. He therefore indicates that Wygodny does not teach or suggest a system comprising "a thread safe remote control service which is executable on the client computer system to receive

control requests from an external source to initiate and manage the debug service on the client computer system”.

However, the applicant should review fig. 1B, which indicates that Bugtrapper (item 104) is on the Agent side (i.e. remotely located) while the traced application (item 102) is on the Client side (remote to the Agent side). Item 104 sends commands (provides remote control) to the remote site (top line from item 104) to control execution (e.g. start/stop trace, initiate and manage trace) at the Client side. This feature is also indicated in fig. 2. The applicant should also see also that Wygodny indicates why debugging should not be performed entirely at the remote site without actual interaction with the system being debugged, col. 1 line 54-65. He further indicates that bugs should be isolated “within the client (remotely) by allowing the developer (inherently, at his location to interactively control, “interactively specify the source code and data elements to be traced”) to trace the execution paths of the client, col. 2 lines 53-56 and col. 2 line 64-col. 3 line 1. The system allows the developer to trace multiple threads, col. 3 lines 20-23, in near real time **“during execution of the client program”**, col. 3 lines 45-52 and col. 4 line 58-64. The tracing can also be performed in real time, col. 5 lines 20-23. Also, see again fig. 2 and col. 7 lines 39-53, which further illustrates the remote control feature.

Therefore, contrary to the applicant's assertions, Bugtrapper provides for the features of the claims and therefore the rejection of the claims listed above is maintained.

The applicant further argues that Wygodny implements his agent and his client application on the same computer; however, it is not clear why this is even considered an issue; since, specifically in claim 1, the applicant indicates that the debug service is **executable on the client** and the thread safe remote control is **executable on the client (i.e. same computer)**. Wygodny's analyzer enables remote (different from or external to the application) initiation and control, see the last line of the abstract and col. 7 lines 39-53. Wygodny further indicates a customer's site (not a customer computer as indicated by the applicant), which is considered to be one or more computers. The interpretation of the one or more is considered relevant based on the mode utilized (the remote mode could be at the same computer, since it refers to being implemented by the user; however, this is considered not necessarily the case since each the user site and the agent site are each specified differently). Furthermore, the online mode implies that multiple sites are present, see again fig. 2.

The standard definitions of both remote and online is hereby provided for the applicant, as indicated in the Microsoft Press Computer Dictionary, 3<sup>rd</sup>, ed.

Remote means not in the immediate vicinity, as a **computer (another**

**computer**) or another device located in another room, building or city. Therefore, the Wygodny's site terms in his remote system could be multiple computers. Furthermore, the definition of online means one or more computers connected to a network; therefore, these features are considered to clearly indicate the remote features claimed.

Therefore, contrary to the applicant's assertions, Wygodny provides for a Bugtrapper on a **remote site**, see the online mode in fig. 2 and col. 1 line 50-col. 2 line 10 and col. 2 line 51-col. 3 line 11. Furthermore, the agent and client sides are considered remote to each other, since requests are provided from one side to the other to initiate tracing. If both the client side and the agent side were considered the same computer, there would be no need to label each side. Also, note that the sides have shared memory 105 of fig. 2. If they were on the same computer, all of the memory would be shared. In receiving commands from an external source, see the commands passed between items 124 and 125. Note also that the **developer** uses the **analyzer** to **interactively** (for example see fig. 1C) create trace control information, col. 7 lines 11-23 and col. 11 lines 53-64.

The applicant further asserts that Wygodny's Bugtrapper does not receive external requests from an external source to initiate and manage the debug services; however, the developer is considered the external source. Note in fig. 1C that the developer is separate from the customer site.

Claim 9 (which further represents group A)

Wygodny further teaches wherein the remote control service ('agent') is operable to begin and end debugging after initiation of the multi-threaded application (See Fig.1B)(illustrating the agent providing commands [e.g. start/stop trace] to the application)(See also col.6, li.1-3).

Claim 10 (which also represents group A)

Wygodny further teaches that the debug service comprises one or more debug objects, each corresponding to a component of the multi-threaded application, wherein each debug object is operable to provide debug services to the corresponding component of the multi-threaded application (col.14, li.13-24; fig. 6, ref .602).

Claims 13 and 14 (which further represents group A)

Wygodny further teaches wherein the debug services comprise a service to list a state for all the debug objects in a multi-threaded application (col. 14, li.13-24; fig.6, ref.602).

Claims 15 and 17 (which further represents group A)

Wygodny further teaches wherein the debug services comprise a service to profile and trace program execution of the multithreaded application (col.14, li.43-50).

Claim 20 (which further represents group A)

Wygodny further teaches wherein the debug services comprise a service to log performance information on the execution of the multi-threaded application-(col.17, li.66 to col.18, li.6).

Claim 21 (which further represents group A)

Wygodny further teaches wherein the remote source comprises a third party application ("analyzer")executing on a remote computer system, wherein the remote computer system is coupled to the client computer system over a network (col.3, li.27-33)(regarding the sending of the agent from the remote computer system to the client computer system).

Claim 2 (which is representative of the applicant's group B)

Wygodny also teaches a debug print function, operable independently of the remote control service to provide debug output for one or more threads of the multi-threaded application (col.5, li.46-50) such that the output of each of the threads remains distinct from the output from the other threads (col.9, li.5-9 and 40-44; fig.3A&B).



The applicant further asserts that Wygodny does not provide for a debug print function; however, Wygodny provides for display information to be viewed online or saved (col. 26 lines 5-18 and further enables the user to display stored information. The displaying is considered to be either on a monitor or any other output display device. Therefore, the print function feature is considered inherent to enable files to be analyzed later (independently, even when the computer is not available) to enable issues to be resolved promptly, see Wygodny's claim 10 (note specifically the offline feature which is operable independently of the remote control service).

Claims 3-7 (which is representative of the applicant's groups C, D, and E)

Wygodny also teaches directing the debug output to an output target comprising a file (trace file"; col.3, li.33-38), a standard output terminal ("display screen"; col.3, li.13-18), or a recipient computer system with a plurality of remote diagnostic tools ("analyzer"; col.3, li.33-44). See again the display screen in the abstract and figures 3a and 3b and the associated text for each figure.

Claims 11 and 12 (which represents groups G and H)

Wygodny further teaches wherein the remote control service allows a remote source to switch the debug services on and off ("selecting or deselecting a checkbox") for a set of components by referencing debug objects by name (col.14, 40-42; fig.5, ref.502) or by specifying a pattern to select a set of debug objects by name (col.2, li.59 to col.3, li.4)(discussing the specification of a custom TCI file to pattern the debug service performed).

Claims 22-28, 30-39, 42 and 43 (which represents groups A-E, as indicated above)

These claims represent the method executed by the system disclosed in claims 1-7, 9-17, 20 and 21, respectively. They are rejected for the same reasons as outlined above.

Claims 44-50, 52-60, 63 and 64 (which represents groups A-E, as indicated above)

These claims represent the medium element of the system disclosed in claims 1-7, 9-17, 20 and 21, respectively. They are rejected for the same reasons as outlined above.

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**Claim Rejections - 35 USC § 103**Claims 8, 29 and 51 (which further represents group F)

10-2. Claims 8, 29 and 51 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Wygodny (U.S. Pat. No. 6,282,701), as applied to Claims 2, 23 and 45 above, respectively. Claim 8 Wygodny teaches the debug output in the C++ language, through use of an illustrative example (col.4, li.24-26; fig.II). Wygodny does not expressly teach that the debug output may be presented in other languages. However, the applicant does not teach the feature either. He merely relies on what was known in the art at the time of the invention. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to apply the system of Wygodny to multi-thread applications written in other languages (including regional or national languages). The modification would have been obvious because one of ordinary skill would have been motivated to apply the system to applications written in any number of languages to produce useful debug output to specific users to achieve the isolation of specific threads and to enable accurate descriptions of problems to each specific user, as taught by Wygodny (col.2, li. 51-56) and col. 1 lines 50-65.

Claims 29

This claim represents the method executed by the system disclosed in claim 8. It is rejected for the same reason as outlined above.

Claims 51

These claims represent the medium element of the system disclosed in claims 1-7, 9-17, 20 and 21, respectively. They are rejected for the same reasons as outlined above.

Claims 18 and 19, 40 and 41, and 61 and 62 (which further represents group A)

9. Claims 18 and 19, 40 and 41, and 61 and 62 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Wygodny as applied to claim 1, 22 and 44 above, respectively, and further in view of Kaler (U.S. Pat. No. 6,467,052).

Claims 18 and 19

Wygodny teaches a service to log performance information on the execution of the multi-threaded application (col.17, li.66 to col.18, li.6). Wygodny does not expressly teach the collection and logging of run-time statistics of the application. In the analogous art of computer performance analysis, Kaler teaches the collection and logging of run-time statistics of an application (col.35, li.49 to col.36, li.4; fig.16). At the time of the invention, it would have been obvious to one of ordinary skill in the art to apply the run-time collection and logging of statistics taught by Kaler in the system of Wygodny. The modification would have been obvious because one of ordinary skill would have been motivated to apply to mathematically quantify the performance of isolated threads in a

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multi-thread application to optimize system performance, as suggested by both Wygodny (col.1, li.36-42; col.2, li.51-53) and Kaler (col.3, li.31-39).

Claims 40 and 41

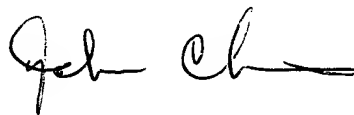
These claims represent the method executed by the system disclosed in claims 18 and 19, respectively. They are rejected for the same reasons as outlined above.

Claims 61 and 62

These claims represent the medium element of the system disclosed in claims 18 and 19, respectively. They are rejected for the same reasons as outlined above.

**(11) Response to Argument**

Responses are provided above.



JOHN CHAVIS  
PATENT EXAMINER  
ART UNIT 2124

John Chavis  
Primary Examiner  
Art Unit 2124

June 14, 2004

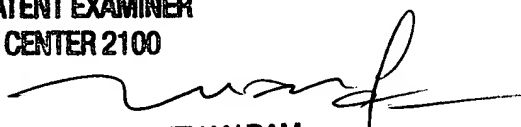
Conferees

Kakali Chaki



KAKALI CHAKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

Tuan Dam



TUAN DAM  
SUPERVISORY PATENT EXAMINER

Robert C Kowert  
Conley Rose & Tayon P C  
P O Box 398  
Austin, TX 78767